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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/964,242	09/26/2001	Stuart F. Metcalfe	L1063/20005	1829
3000 7590 10/30/2003 CAESAR, RIVISE, BERNSTEIN, COHEN & POKOTILOV, LTD. 12TH FLOOR, SEVEN PENN CENTER 1635 MARKET STREET PHILADELPHIA, PA 19103-2212			EXAMINER NGUYEN, MICHELLE P	
			ART UNIT 2851	PAPER NUMBER

DATE MAILED: 10/30/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/964,242

Applicant(s)

METCALFE ET AL.

Examiner

Michelle Nguyen

Art Unit

2851

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED. (35 U.S.C. § 133)
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-57 is/are pending in the application.  
4a) Of the above claim(s) 1-31 and 43-57 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 32-37 is/are rejected.
- 7) ☒ Claim(s) 38-41 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 September 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☒ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_.
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_ 6) ☐ Other:

**DETAILED ACTION**

***Election/Restrictions***

1. Applicant's election without traverse of Invention IV, claims 32-42, in applicant's response filed September 22, 2003 is acknowledged.

***Priority***

2. Acknowledgment is made of applicant's claim for foreign priority based on an application filed in the United Kingdom on August 24, 2001. It is noted, however, that applicant has not filed a certified copy of the 0120588.9 application as required by 35 U.S.C. 119(b).

***Drawings***

3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the following must be shown or the feature(s) canceled from the claim(s):

- (a) Opacity monitor (claim 32)
- (b) Reflector (claim 32)
- (c) Analyzer (claim 32)

No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

***Claim Objections***

4. Claims 32 and 35 are objected to because:

- (d) In claim 32, line 7, "gas" should be deleted.
- (e) In claim 32, line 11, "optical" should be --opacity--.
- (f) In claim 35, line 2, "arranging said LEDs to be oriented 120° with respect to each other" should be --said LEDs oriented 120° with respect to each other-- because claims may be directed to either an apparatus or a method- not both. Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

6. Claim 32 is rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,476,911 to Rose.

With regard to claim 32, Rose discloses an opacity monitor for measuring the opacity of gases in an open path of gases, said opacity being defined as the fraction of

transmitted light which is lost in transmission through the open path of gases, said opacity monitor comprising:

an optical transmitter having a light source that projects a homogeneous (light-emitting diode 38) light beam across the open path of gases (see path between smokestack 14 and wall W) (see Fig. 1);

a reflector (wall W) for reflecting a portion of said projected homogeneous light beam back towards said optical transmitter through said open path of gases (see Fig. 1);

an analyzer (photodetector 48) for detecting said portion of said projected homogeneous light beam and calculating the opacity of said gases (see Col. 1, lines 21-9); and

wherein said opacity monitor detects opacities less than 10 percent while operating within specific performance requirements (see Col. 1, lines 21-9, Col. 2, lines 21-8, Col. 8, lines 50-67).

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 33-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rose as applied to claim 32 above, and further in view of U.S. Patent No. 6,404,984 to Parvulescu et al. and U.S. Patent No. 5,617,212 to Stuart.

With regard to claim 33, Rose does not teach the opacity monitor of Claim 32 wherein said light source comprises a plurality of light emitting diodes (LEDs). Instead, Rose teaches the light source to comprise only one light emitting diode (see Fig. 1). However, Parvulescu et al. teach a light source comprising a plurality of light emitting diodes (diodes 103) arranged at a predetermined angular orientation with respect to each other and emitting respective light beams therefrom (see Fig. 1). It would have been obvious to one having ordinary skill in the art at the time the invention was made to replace the light source of Rose with the light source of Parvulescu for increasing illumination.

With further regard to claim 33, Rose also does not teach the opacity monitor of Claim 32 wherein said light source comprises an optical diffuser. However, Stuart teaches a light source (see LED 1) comprising an optical diffuser (diffuser 2) positioned at a predetermined distance from the light source to form a homogeneous light beam (see Fig. 2). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to add to the light source of Rose the diffuser of Stuart for increasing illumination uniformity.

With regard to claim 34, Parvulescu et al. teach the light source discussed above with respect to claim 33 wherein said plurality of LEDs comprises more than three LEDs, i.e. eight LEDs (see Fig. 1). However, the omission of an element and its function in a combination where the remaining elements perform the same functions as before involves only routine skill in the art. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to omit five of the

eight LEDs of Parvulescu et al. to reduce illumination to a desired level, i.e. the level of illumination provided by three LEDs.

With regard to claim 35, Parvulescu et al. teach an arrangement in which the eight LEDs discussed above with respect to claim 34 are oriented 45 degrees with respect to each other; that is, the LEDs are oriented symmetrically about the center of a circle (see Fig. 1). Therefore, the case in which three LEDs are used requires the arrangement in which the LEDs are oriented 120 degrees with respect to each other.

9. Claims 36-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rose in view of Parvulescu et al. and Stuart as applied to claim 35 above, and further in view of U.S. Patent No. 6,558,021 to Wu et al.

With regard to claim 36, Parvulescu et al. are silent as to a means for mounting the LEDs discussed above with respect to claim 35. However, Wu et al. disclose a light source comprising a plurality of LEDs (LEDs 18) wherein each of said LEDs comprises a pair of leads (see Col. 3, lines 62-4) and wherein said light source further comprises:

an LED holder (surface 20) having holes (see Col. 3, lines 62-4, Fig. 1A);

a clamp member (housing 12) having holes for each one of said leads  
(see Col. 3, lines 62-4, Fig. 1A);

wherein said LED holder and said clamp member couple together to  
maintain said LEDs in a predetermined orientation (see Fig. 1A).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to employ the mounting means of Wu et al. for mounting the LEDs of Parvulescu et al. for maintaining said LEDs in a predetermined orientation.

With regard to claim 37, Wu et al. teach each of said LEDs discussed above with respect to claim 36 to comprise a flattened portion (sides of the LEDs) and wherein said clamp member is arranged to orient the flattened portion of each of said LEDs towards each other (see Fig. 1A).

10. Claim 42 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rose as applied to claim 32 above, and further in view of American Society for Testing and Materials D 6216-98: Standard Practice for Opacity Monitor Manufacturers to Certify Conformance with Design and Performance Specifications (ASTM D6216-98).

With regard to claim 42, Rose is silent as to whether the specific performance requirements of the opacity monitor of claim 32 comprise all of the requirements of ASTM D6216-98. It is noted that the additional performance requirements set forth in the claim fall within the requirements set forth in ASTM D6216-98. It would have been obvious to one having ordinary skill in the art to manufacture the opacity monitor of Rose such that it conforms to the specific performance requirements set forth in ASTM D6216-98 in order to render the opacity monitor more sellable.

***Allowable Subject Matter***

11. Claims 38-41 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

12. The following is a statement of reasons for the indication of allowable subject matter:



With regard to claim 38, the prior art does not teach in combination with all other limitations recited in the claim an opacity monitor wherein each of a plurality of LEDs comprises a flange and wherein an optical diffuser comprises an inside surface, a predetermined distance comprising 12.5 mm between said flanges and said inside surface, as set forth in the claim.

With regard to claim 39, the prior art does not teach in combination with all other limitations recited in the claim an optical diffuser supported inside a diffuser holder comprising a low-magnesium aluminum alloy as set forth in the claim.

Claims 40-41 include all limitations set forth in claim 39.

### ***Conclusion***

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Patent No. 4,640,621 to Rose.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michelle Nguyen whose telephone number is 703-305-2771. The examiner can normally be reached on M-F 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Russ Adams can be reached on 703-308-2847. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-4900.

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*Amel & Adnan*